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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,724	06/08/2001	Georgios Ginis	STFUP018	8945
40581	7590	05/31/2005	EXAMINER	
CRAWFORD MAUNU PLLC 1270 NORTHLAND DRIVE, SUITE 390 ST. PAUL, MN 55120			CORRIELUS, JEAN B	
			ART UNIT	PAPER NUMBER
			2637	
DATE MAILED: 05/31/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

871

Office Action Summary

Application No.

09/877,724

Applicant(s)

GINIS ET AL.

Examiner

Jean B Corielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 13-20, 33-40, 53-60 and 62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 21-32, 41-52 and 61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) _ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/02&10/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 13-20, 33-40, 53-60 and 62 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/14/05.

Drawings

2. Figures 1-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. Fig 7, box 716, replace "Line and signal characteristics" by "Line, signal and interference characteristics" so as to show the claimed subject matter recited for instance in claim 1. Box 714, "requirements and constraints for all links" should be replaced by "creating a model for the line signal and interference characteristics of the communication lines" so as to match language recited in the claims. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to

avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: please provide status update of related US Applications mentioned in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 6, 21-22, 26, 41-42, 46 and 61 are rejected under 35 U.S.C. 102(e) as being anticipated by applicant admitted related art fig. 3.

As per claim 1, applicant admitted related art fig. 3 (note that applicants describes fig.1-fig.6 as related art, it is assumed that those figures are prior art) discloses a method and apparatus for reducing noise comprising having a plurality of communication lines see fig. 3 on which signals are transmitted and received, the signals being affected by interference during transmission, each of the communication lines having at least one transmitter 310 and at least one receiver, 311, the method comprising the steps of: collecting information about line signal and interference characteristics of the communication lines using elements 316; creating a model of the line, signal and interference characteristics of the communication lines using elements 314; synchronizing transmissions of signals inherently between transmitters and receivers(note that in order to establish communication between at least two stations, received signal(s) has to be synchronized with the transmitting entity(ies)(transmitter(s)), and transmitting signal(s) has to be synchronized with receiving entity (receiver(s)) hence such a step is inherently provided by applicant admitted related art fig. 3; and processing signals using the model to remove interference from the signals using circuit box 315.

Claims 21, 41 and 61 are likewise rejected as they include similar limitations as in claim 1.

As per claims 2, 22, 42, the digital communication system is a DSL system see fig. 4.

As per claims 6, 26, and 46, the signals includes crosstalk signals from adjacent line see page 4, line 7.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-4, 8-9, 23-24, 28-29, 43-44 and 48-49 are rejected under 35 U.S.C.

103(a) as being unpatentable over applicant's admitted related art fig. 3.

As per claims 3-4, 23-24 and 43-44, applicant's admitted related art fig. 6 discloses every feature of the claimed invention but does not explicitly teach whether processing of the signal using the model is done prior to transmission or after reception. However, such limitation does not involve any inventive step. It would been obvious to one skill in the art at the time of the invention to process of the signal using the model prior to transmission or after reception in order to satisfy system's requirements.

As per claims 8, 28 and 48, it would have been obvious to one skill in the art to use QR decomposition to remove interference so as to optimize interference cancellation process.

As per claims 9, 29 and 49, it would have been obvious to one skill in the art to collect line signal and interference by a party other than a user so as to enhance system performance

9. Claims 5, 25 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted related art fig. 3 in view of Koehn et al.

As per claims 5, 25 and 45, applicant's admitted related art fig. 6 discloses every feature of the claimed invention but does not explicitly teach the synchronizing comprises using block transmission and reception. However, synchronizing using block transmission and reception is well established in the art for instanced, Koehn et al teaches synchronizing using block transmission and reception see paragraph 0026. Given that it would have been obvious to one skill in the art to incorporate such a teaching in Applicant's admitted related art so as to ensure that synchronization time is minimized since the signal would have been processed in block or group rather a bit by bit/symbol by symbol basis.

10. Claims 7, 27 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted related art fig. 3 in view of Wiese et al.

As per claims 7, 27 and 47, applicant's admitted related art fig. 6 discloses every feature of the claimed invention but does not explicitly teach the interference is removed from the signal on a tone by tone basis. Wise teaches at col. 3, lines 51-62, the

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removing of interference from signal on a tone by tone basis. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in applicant's admitted related in order to insure that interference is effectively removed from the signals.

11. Claims 10, 11, 30, 31, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted related art fig. 3 in view of Reusens et al.

As per claims 10, 11, 30, 31, 50 and 51, applicant's admitted related art fig. 6 discloses every feature of the claimed invention but does not explicitly teach the step of processing signals using the model to remove interference from signals comprises maximizing a weighted sum of the data rates of the users. Reusens et al teaches processing signals using the model to remove interference from signals comprises allocating energy to each user for transmission of the signals (maximizing a weighted sum of the data rates of the users) see paragraph 0002. It would have been obvious to one skill in the art to incorporate such a teaching in applicant's admitted related art fig. 3 so as to data bits are not transmitted via affected carriers. Note that the users inherently have to be permitted to send or receive signals at a data rate.

12. Claims 12, 32 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted related art fig. 3 in view of Carrender.

As per claims 12, 32 and 52, applicant's admitted related art fig. 3 discloses every feature of the claimed invention but does not explicitly teach the step of processing signals using the model to remove interference from signals comprises dynamically adjusting the frequencies used to send the signals. Carrender teaches


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transmission of signals using a plurality of frequencies and further teaches dynamically adjusting the frequencies used to send the signals. See paragraph 0009. It would have been obvious to one skill in the art to implement such a teaching in applicant's admitted related art fig. 3 in order to minimize interference between users.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jean B Corrielus
Primary Examiner
Art Unit 2637

5/28/05